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necessarily lacking in what is due to scale, it shows the wonderful structure of the region in which the Great Nebula is situated as nothing else has ever shown it.

Some of the above pictures made with the portrait lens have been beautifully reproduced in *Knowledge* of July and August (A. C. RANYARD, ed., 67 Chancery lane, London, W. C.). The July (1890) number of that journal has a full-page reproduction of the Milky Way picture in R. A. $17^h 56^m$, Dec. — 28°, done in an admirable manner by the Direct Photo-Engraving Company, of London, and is accompanied by an article by the editor on the singular features shown on the photograph.

MT. HAMILTON, August, 1890.

BLACK TRANSIT OF *JUPITER'S* SATELLITE IV.

By C. B. HILL.

While entertaining a party of visitors at the Chabot Observatory on August 13, I turned the 8.5-inch equatorial on *Jupiter*, and noticed that the fourth satellite, then in transit, was outlined against the apparent lower limit of the N. belt as a perfectly black spot, even more pronounced in its blackness than is the usual shadow.

This was at 9:10 P. M. Pacific standard time; and as soon as the visiting party had left the observatory, I went to the telephone office, and notified Professor BARNARD at the Lick Observatory, knowing him to be especially interested in this class of phenomena, only to find (as might have been expected) that this event had not escaped the astronomer in his nightly comprehensive sweep of the heavens.

Resumed observations 10:10 P. M. Satellite IV, equally black; seemingly internally tangent to N. line of belt, and followed by two little dark spots. Under highest powers (400, 500), satellite still remained strikingly black, and to my eye *perfectly circular*, while the details of the belts, and all trace of the other dark spots were lost in the indistinct vision.

Made sketch of the planet 10:30–10:45. First dark spot closing up on satellite, on account of the rapid rotation of planet. Image of IV now seemed to me rather grayer. Consulted ephemeris, and found that the entry of shadow and the leaving of the last train for the city would be dangerously close together, but I compared my watch with the observatory time, and made ready for a hasty departure.

IV. Shadow Ingress (August 13).

	h.	m.	s.	
I contact, well on	11	1	43	P. s. t.
Half on (?) *too early*	11	3	58	
II contact, suspected	11	7	58	
do. established	11	9	33	

A rapid glance at the images of satellite and shadow confirmed the opinion that the former had *slightly* diminished in blackness, it being now a shade the lighter. The preceding dark spot on belt had nearly disappeared under the N. limb of the satellite.

It seems time for some competent hand to collate the accounts of these anomalous transits and endeavor to evolve something definite out of the various conjectures of their cause. If we suppose (1) that there is a difference in the *albedo* of the two hemispheres of IV, and (2) that the rotation of this satellite is equal to its period of revolution, a tabulation of all the dark and partly dark transits should, I imagine, either definitely affirm or break down these hypotheses.

Jup. Sat. I, Occultation Disappearance (August 15).

	h.	m.	s.	
I contact (?)	9	21	58	P. M.
do. established	9	22	44	
Half gone (?)	9	24	19	
Still visible	9	26	11	
Trace	9	26	30	
Gone	9	26	42	

Times recorded by Mr. HENDERSON.

August 15, 1890, P. M.

AWARD OF THE DONOHOE COMET MEDAL.

The Comet Medal of the Astronomical Society of the Pacific has been awarded to W. F. DENNING, Esq., F. R. A. S., of Bristol, England, for his discovery of Comet *c* 1890, on July 23, at $11^h\ 35^m$, Greenwich mean time. This is the second comet discovered by Mr. DENNING.

The Committee on the Comet Medal,
EDWARD S. HOLDEN,
J. M. SCHAEBERLE,
CHAS. BURCKHALTER.